

tion here offered, and ladies accordingly should always form part of the committee; young people also who have lately left school and can attract their companions to continue whatever study they have liked or felt the value of; pupil teachers—often, hereafter we hope, as at Hull now, the School Board paying the fee—attending as a matter of business; and artisans who feel their deficiencies. The trades unions of the latter already, some of them, spend 1000*l.* a year in education, and if men can also be attracted here to increased knowledge, lay in a solid foundation of some science at a course of lectures, and get their intelligence awakened to what is going on in the world around them, public-houses will to them be no great temptation, and much of their work will be carried on more intelligently.

Where, as is generally the case, from three to five towns at no great distance apart can agree upon a course of lectures to be given, and audiences can be drawn to both afternoon and evening deliveries, it is found that the charge made to one of the courses need not exceed three shillings for the set of twelve lectures. Nevertheless the financial difficulty is described as the greatest both to lecturers with the rich University at their back, and to hearers, who certainly may lose working-hours and perhaps feel the attendant small expenses of books, &c. It is one of the most curious characteristics of this movement that the lectures are assiduously attended by all classes of society alike, and yet the seekers after knowledge themselves do not value it at its cost price, even when offered on so liberal and economical terms. However, higher education always did require the help of the patron of letters and of the founder of the college, and he who assists these classes may rest satisfied that he is carrying on their work in a modest way.

Prof. Stuart in his Introduction hopes, and cannot doubt, that the University or some other competent body may realise the vast influence and noble position here to be attained. The compressed population of England possesses great economical advantages over the scattered townships of America. It cannot be believed that financial difficulties will be suffered to stand in the way of this movement, and we may look forward to seeing our Universities literally worthy of their name through offering all knowledge to all sorts and conditions of men.

W. ODELL

THE NEW NATURAL HISTORY MUSEUM IN VIENNA

THE two magnificent palaces in the Ringstrasse, opposite the old Kaiserburg, designed, the one for the conservation and exhibition of the art history, the other of the natural history, collections of the Imperial Court, are rapidly approaching completion. Completely alike as they are in their decorations and their style of architecture generally, their interior arrangement does of course in each case conform with the special requirements of the collections each is intended to receive. The lateral front, 69·38 metres long, faces the Ringstrasse; the main fronts, at right angles to the Ringstrasse, run, with a length of 169 metres, parallel to each other, separated by a square which is laid out in garden plots, and is to be crowned in the centre by the monument of Maria Theresia. The design and execution of the two buildings emanate from one of the most eminent architects of Vienna, Karl Baron Hasenauer, who is at present directing likewise the erection of the Court Theatre, and the reconstruction of the Hofburg.

The building occupying the more western site, and destined to receive the Natural History Museum, is somewhat further advanced as a whole than its eastern compeer. A few particulars regarding this Institute will be acceptable to the readers of NATURE.

The collections hitherto kept apart, and now about to be united into one grand and indivisible whole in the new building, are under the supreme direction of the Royal and Imperial Chief Staff of Stewards of the Court (*Obersthofmeisteramt*), the present head of which, Prince Constantine Hohenlohe, takes a most lively interest in this branch of his administration. They embrace:—

(1) The Mineralogical Court Collection, hitherto distributed in four rooms of the Hofburg and some smaller underground compartments there. These comprise the mineralogical, geological, and palæontological treasures.

(2) The Zoological Court Museum, popularly known as the "Naturalien Cabinet," hitherto exhibited in a quarter of the Hofburg, in Josephsplatz, adjoining the Court library.

(3) The Botanical Court Museum, which, along with the herbarium of the University, found its accommodation in a structure situated in the Botanical Gardens, and belonging to the University.

(4) The Prehistoric, Anthropological, and Ethnographical collections, hitherto not exhibited, but kept packed in various depots.

The new building destined for the accommodation of these collections possesses four stories. The lowest, elevated but a few feet above the level of the street, and distinguished as the "*Tiefparterre*," is arranged as a storehouse, with assorting rooms for the different divisions of the Museum, and here, too, the chemical laboratory for the mineralogical department is to be fitted up. The next two stories, distinguished as the "*Hochparterre*" and "First Floor," are designed for the exhibition of the various objects that will be arranged for general view. Each of them consists of a suite of nineteen halls, ranging from 200 to 260 square metres in area, disposed all round the exterior face of the building, which stands on free and open ground, in such order that, entering from the staircase, visitors will be enabled to pass through them in a continuous series, re-issuing into the staircase at a place opposite to that by which they entered. Inside this exterior suite of rooms, and looking down into the two large courts, are ranged a series of smaller compartments in a line parallel to that of the large halls, destined in part likewise for purposes of exhibition, but mainly for the libraries of the different departments and the laboratories of the various divisions.

The plan for the distribution of the different collections in the halls, and for the general arrangement of the whole, was drawn up by my predecessor, Intendant Hofrath von Hochstetter, who, unhappily, was called away in the midst of his ardent activities in the summer of 1884; and, except in the case of a few quite subordinate alterations, this plan has been completely maintained.

The former Mineralogical Court Collection is divided into two assortments: a mineralogical-petrographical and a geological palæontological. The first, which is under the care of the custodian, Dr. A. Brezina, assistant to Dr. Friedrich Berwerth, has the Halls I. to V. inclusive in the *Hochparterre* (see figure) assigned to it. In the central repositories of the Halls I. to III. will be shown the finest specimens of our long-celebrated collection of minerals, arranged in the main according to the system of Groth. The wall-cases, having higher frames, will exhibit in part the larger specimens, and in part local series of minerals. In the window recesses in Hall III. will be disposed a collection of polished precious stones.

Hall IV. will display in its wall-repositories a collection representing the paragenetic relations of minerals, as also smelting processes.

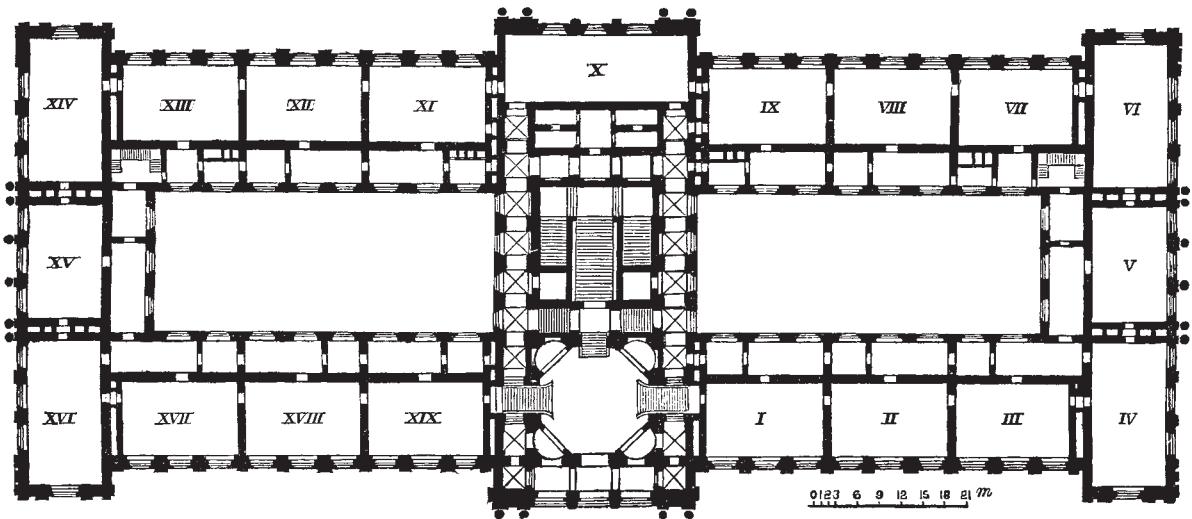
The central cases of Hall V. are intended to accommodate the meteorites. These will constitute the most brilliant point in the whole division. According to the last inventory of Dr. Brezina ("Year-Book of the Royal and Imperial Geological Institute," 1885, p. 151), this collec-

tion, on May 1, 1885, represented no less than 358 localities in 1197 specimens, having a total weight of 1,134,836 grammes. The wall-repositories of this hall will contain the collection of stone species, as also the beautiful and instructive collection of building materials amassed by a voluntary fellow-labourer, Herr Felix Karrer.

The Halls VI. to X. are destined for the Geological Division. At the head of this department is Herr Theodor Fuchs, with his assistants, Herren E. Kittl and F. Wähner. In Hall VI. will be displayed the rich phyto-palaeontological collection acquired for the Museum in largest part by purchase from Baron von Ettingshausen, and containing the types enumerated in his many descriptive works, a collection which has already been exhibited by himself. In the wall-repositories of this hall a collection of instructive specimens is to be presented, illustrating the dynamic processes in the formation and transformation of stones. The Halls VII. to IX. will present to view the collection of petrifications classified, in the first place, according to the grand orders of the different ages and, within this classification, according to the zoological system. Hall X., finally, is destined for the exhibition of the skeletons of the larger Mammalia of the Cænozoic age, as also of the numerous and beautiful moa skeletons we possess.

The treasures of this last hall will enable the student to pass now, without break of continuity, into the prehistoric series of specimens under the direction of Herr F. J. Szombathy, with Herr N. Wang as his assistant. This collection will extend through the Halls XI. to XIII. Sorted into great groups, there will be displayed in these spaces the accumulations of the Palæolithic and Neolithic periods, the Bronze period, the Hallstätter period, the Latèn period, then of the Roman and Merovingian periods. Within these large groups the distribution will be of a geographical character, so that each locality will have its own treasures of the prehistoric age grouped by themselves. The most prominent section in this division will be formed by the excavations from the celebrated burying-field on the Hallstätter Salzberg, and hardly less interest will be excited by the disintombments from the caves of Moravia and Krain, from the settlements and burying-grounds in Carinthia, in Krain, in Northern Bohemia, &c.

The remaining spaces of the *Hochparterre* are allotted to the ethnographical collections under the supervision of the Custodian, Herr Franz Heger, with his assistant, Dr. M. Haberlandt. Here, too, the arrangement will be of a geographical nature, Halls XIV. and XV. being



assigned to the ethnography of America, Hall XVI. to that of Australia and Oceania, and Hall XVII. to that of Africa, while Halls XVIII. and XIX., along with some smaller adjoining compartments, will represent the ethnography of Asia. In this division, which will have all the charm of novelty for our Viennese public, the richest collections are those from Brazil, and, next to these, from the regions of the Upper White Nile.

In complete accordance with the structural arrangement of the *Hochparterre* is that of the "First Floor," in which the Halls XXI., XXII., and so on, will range themselves exactly above the Halls I., II., &c., the intermediate number of XX. being borne by the vestibule in the *Hochparterre*. The whole of this "First Floor" is devoted to the exhibition of the zoological collections. This division falls under the supervision of the Director, F. Steindachner, who has, in addition, specially reserved to himself the care of the collections of Fishes, Amphibia, and Reptiles. Other officials of this division are Herr A. von Pelzeln and Friedrich Kohl for the Mammalia and Birds; Profs. Brauer and Dr. E. Becher for the Mollusca; Herr A. Rogenhofer for the Lepidoptera, Hemiptera, and Hymenoptera; Herr L. Ganglbauer, for the Coleoptera and Orthoptera; Prof. F. Brauer, for the Diptera and Neuroptera; Herr C. Kölbl, for the Crustacea, Myria-

poda, and Arachnida; Dr. G. von Marenzeller and Dr. von Lorenz, for the other divisions of the invertebrate animals.

Most richly represented in the zoological division are,—the group of birds, in respect of which, and more particularly the types from Brazil—thanks to the collections of Natterer, formed in his time—our Museum still, perhaps, takes the first rank among the Museums of Europe; the group of fishes, which recalls to mind the labours of a Heckel, a Kner, and recently our excellent Steindachner; the group of insects in general, and, in particular, that of the Diptera, in which are incorporated, among other collections, the celebrated ones of Meigen and Schiener, &c.

In Hall XXI. are exhibited the Protozoa, Cœlenterata, Echinodermata, and Vermes; in Hall XXII., the Arthropoda; in Hall XXIII., the Mollusca; in Halls XXIV. to XXVI., the Fishes; in Halls XXVII. and XXVIII., the Amphibia and Reptiles; in Hall XXIX., a special collection of the Birds of Austria-Hungary; in Halls XXX. to XXXIII., the systematic collection of Birds; and in Halls XXXIV. to XXXIX., the Mammalia.

In some adjoining rooms on this floor will be exhibited the very rich and magnificently prepared collection of

fish skeletons presented to the Museum by the Director, Steindachner.

The highest story of all, the so-called "Second Floor," presents the same distribution of halls and adjoining rooms as do the *Hochparterre* and the "First Floor." The halls distinguished by the numbers from XLI. to LIX. correspond with the Halls I. to XIX. in our sketch.

The spaces on this floor will, as a rule, not be admissible to the public at large, but will be mostly appropriated as workrooms for the officials of the establishment and for experts to whom the use of the collections and other appliances is to be granted on the most favourable conditions possible.

One half of the second floor, comprising the halls from XLI. to XLIX. inclusive, will be set apart for the zoological division. Here the main collections of the invertebrate animals, only a small part of which can be exhibited on the first floor, will be kept in closed cases. Two halls will accommodate the skeletons of the Mammalia and birds, and one hall will lend itself as a library to the accommodation of periodical literature of general interest, while all publications of special departments will be distributed in the workrooms of the respective divisions.

Hall L. is destined for the collection, already very rich, of human skulls and skeletons.

Halls LI. to LIV., inclusive, are devoted to the botanical division. On the death, last summer, of the custodian of this department, Dr. Reichardt, the charge of it was committed to Dr. G. Beck, with whom is associated as assistant, Dr. Szeszylovic. The first three halls contain the herbarium, very valuable for the numerous original types it possesses; the last comprises the collections of woods, fruits, &c.

Halls LV. and LVI. form the reserve rooms for the geological division, in which the particularly rich chief collection of Tertiary Conchylia and the more subordinate collections of Foraminifera and Bryozoa are to be bestowed.

The Halls LVII. to LXIX., finally, are to be appropriated as reserve rooms for the ethnographical collection, which is growing at an extraordinarily rapid rate.

Be a few words still allowed me respecting the state of the works yet needing to be completed before our Museum can be opened for public entertainment and instruction.

The building of the palace and its decoration in all exterior parts is finished. All the halls, workrooms, and dwelling-rooms are ready for use and in large part already occupied. The cases and stand apparatus destined to receive the collections are also in large part already set up or in process of being set up. Building operations of any serious extent yet remaining to be done are confined to the interior, and more particularly the central axis of the building in which the staircase stands. This work, however, is of such compass that, according to the declaration of the superintendent of the building, it will yet claim nearly two years before it is ended. So far as the collections themselves are concerned, they are all, with the exception of the large Mammalia, already transferred into the new building, and a beginning has also been made in arranging and disposing them. With the final completion of the building, this latter work will likewise be completed, and then will this new establishment for scientific labour and for the instruction of the public be at once opened.

Vienna

FRANZ VON HAUER

NOTES

THE Council of the Royal Meteorological Society have arranged to hold at 25, Great George Street, S.W., on the evenings of March 16 and 17 next, an exhibition of barometers. The Exhibition Committee invite co-operation, as they are anxious to obtain as large a collection as possible of such instru-

ments. A list of some of the principal patterns of which the Committee desire specimens has been prepared, and may be had by applying to Mr. William Marriott, Assistant Secretary. The Committee will also be glad to show any new meteorological apparatus invented or first constructed since last March, as well as photographs and drawings possessing meteorological interest not previously exhibited.

THE appointment of Sir Lyon Playfair to be Vice-President of the Council will be welcomed by all friends of education and of science. Sir Lyon's recent utterances on the duty of the State as to the promotion of scientific research must be fresh in the memories of our readers; and it will be interesting to watch to what extent the Minister's practice accords with his creed.

THE inauguration of the statue of Claude Bernard by Guillaume took place on Sunday last, at the entrance of the Collège de France. Speeches were delivered by MM. Paul Bert, Berthelot, Chauveau, Dastre, Fremy, and Renan. The audience was large, in spite of the very cold weather. The statue of Bernard stands near a table on which has been placed a dog undergoing dissection. The animal is partly concealed by a large bronze sheet on which are written these words—"Glycogenie Diabete—Nerfs vasomoteurs—Substances toniques—Liquides digestifs," which may be considered as giving a summary of the extent of Claude Bernard's disquisitions and discoveries.

THE death is announced of Dr. Arnold Konstantin Peter Franz von Lasaulx, Professor of Mineralogy and Geology at Bonn University. He died at Bonn on January 25, aged forty-six years.

AT the last sitting of the Paris Academy of Sciences M. Paul Bert took leave of his colleagues. He said that his academical qualifications were the principal cause of his appointment to his mission. He will be brought into contact with the *savants* of the East, and he is hoping to convert them to the principles of the West merely by persuasion and without being obliged to resort to coercion.

THE Académie des Sciences, in awarding the Prix Montyon to M. Girard, the director of the laboratory opened in Paris seven years ago for testing the quality of the food and drink sold by the tradesmen of the capital, has issued a report which shows how much good this laboratory has done. The laboratory was first opened in 1878, and specimens of wine, beer, cider, milk, chocolate, coffee, tea, &c., are examined daily; so, too, are the colours used for toys, sweetmeats, and liqueurs, as well as pork suspected of containing trichinosis, and tinned meats. Some of these samples are brought by the public, and the analysis is made free of cost when all that is asked is whether they are free from adulteration. If, however, an analysis of their proportionate composition is required, the laboratory makes a small charge, and this brings in an annual income of about 1200*l.* a year. A larger number of samples are, however, brought in by the twenty inspectors who are attached to the laboratory, and whose duty it is to visit the different taverns and grocers' shops, and examine the articles offered for sale. These inspectors are provided with a microscope and with acids, which enable them to test a good deal of merchandise on the spot, and they only bring back to the laboratory specimens of the articles which they have reason to suspect are adulterated. There are twenty-five chemists attached to the laboratory, each of whom has his own special department, one taking milk, another wine, and so on. Each sample is divided into two parts, one of which is kept as evidence in case it should be found to be adulterated. The municipal laboratory analyses about 25,000 samples per annum at a cost of about 8000*l.*

THE total rainfall at the Ben Nevis Observatory during 1885 was 146.50 inches, the largest monthly fall being 24.33 inches in